

# ALLISON MODEL 660 PREAMPLIFIER MODULE

A VERSATILE TWO-STAGE, SOLID-STATE, PREAMPLIFIER



The Allison 660 Preamplifier Module is a low-noise, self-contained amplifier package. Gain is controlled by selection or adjustment of resistance in the feedback loop. Maximum recommended voltage gain is 40 db.

In addition to providing adjustable voltage gain, the open feedback loop permits the insertion of equalizing networks or tuned circuits for selective amplification.

The 660 may be operated from a DC supply voltage over the range of 13.5 volts to 22.5 volts. Under all conditions, the current drain will be less than 1.0 milliamperes. Together with adjustable gain, these factors provide the flexibility and minimum power drain necessary in many applications.

The circuit components of the module are welded and encapsulated for a high level of environmental protection. Transistors are mounted in molded-in sockets for ease of replacement. This same feature gives versatility in selection or substitution of transistors for greater temperature stability, increased frequency response, or greater signal-to-noise ratio.

The modular construction of the 660 saves engineering time since they may be used in breadboards, prototypes and into final production *without change in specification*. Mounting method is simplified by molded-in tapped inserts.

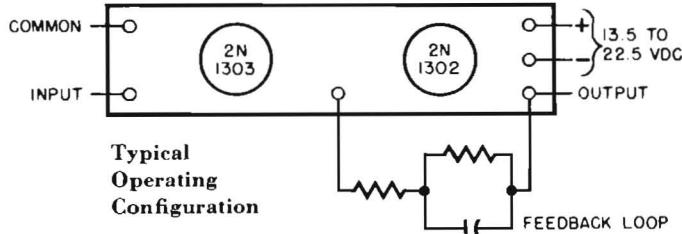
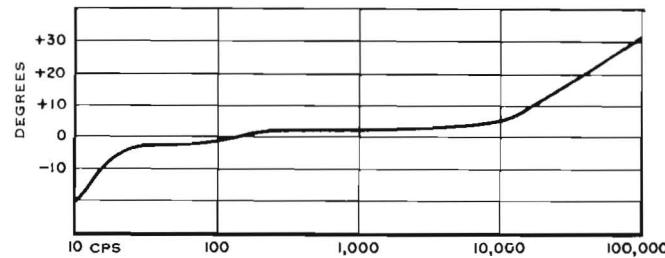
Some typical applications for the 660 are: (1) As a voltmeter preamplifier for very low level measurements (the noise is low enough to allow measurements below 10 microvolts from 10 cps to beyond 1 megacycle); (2) As a frequency selective voltmeter preamplifier with measuring levels below 1 microvolt; (3) As a tape recorder equalized playback preamplifier with a signal-to-noise ratio of 85 db or more; (4) As a preamplifier for counters, recorders, and other instruments to extend the input voltage range more than 2 decades below the normal sensitivity; (5) Coupled with other Allison Modules for complete transistorized voltmeter systems which may be built into test instrumentation.

*Represented by*

## FEATURES

- Low Noise • Fixed or Adjustable Gain
- Wide Bandwidth • Wide Dynamic Range
- Selective Amplification • Miniature
- Low Output Impedance • Solid State
- Non-Microphonic • Welded Construction
- Service-Free Operation • Low Cost
- Encapsulated • High Input Impedance
- Shock and Vibration Resistant

## TYPICAL PHASE SHIFT



## PRICES F.O.B. FACTORY

1 - 4	• . . . .	\$31.50
5 - 9	• . . . .	\$27.50
10 - 24	• . . . .	\$25.00
25 - 49	• . . . .	\$23.80
50 - 100	• . . . .	\$22.50

DELIVERY - STOCK TO 10 DAYS  
F.O.B. - LA HABRA

See reverse side of sheet for full electrical and mechanical specifications, prices, and delivery information.

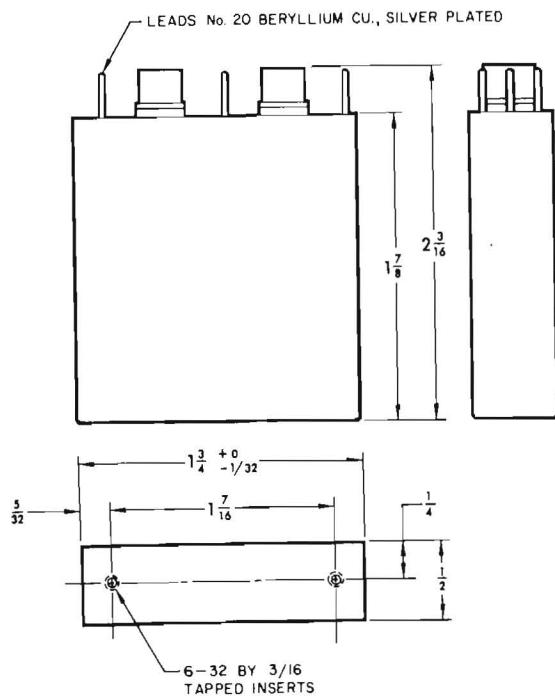
*Proved dependable in years of service*

**Allison Laboratories, Inc.**

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# MODEL 660 SPECIFICATIONS

## OUTLINE AND MOUNTING DIMENSIONS



In the specifications given herewith, data is supplied for the Model 660 Preamplifier at various gains and with maximum and minimum supply voltages. This displays the versatility of this unit in very low or medium level circuits. Note the wide range of frequencies which may be amplified when gain is limited to 20 db.

**GAIN AT 1 KCPS:** Variable from 20 db to 40 db.

**GAIN STABILITY:** Constant  $\pm 0.5$  db. from  $0^\circ$  to  $50^\circ\text{C}$ .

**LOAD IMPEDANCE:** Minimum recommended load impedance is 10,000 ohms.

**AVERAGE CURRENT:** 1 ma.

**SIGNAL-TO-NOISE RATIO:** 85 db with 40 db gain, and 22.5 VDC (Input shorted).

## IMPEDANCE

Input (Minimum)			Output (Maximum)		
20 db	30 db	40 db	20 db	30 db	40 db
42K	40K	35K	70 ohms	200 ohms	800 ohms

NOTES: Temperature variation of  $0^\circ\text{C}$  to  $50^\circ\text{C}$  will cause negligible change.

## OUTPUT VOLTAGE (RMS) (Maximum at $25^\circ\text{C}$ )

20 db		30 db		40 db	
NL	10K Load	NL	10K Load	NL	10K Load
1.0	0.6	2.2	1.2	3.0	2.2

NL—No Load.

No load figures are stable from  $0^\circ\text{C}$  to  $50^\circ\text{C}$ . 10K load figures will decrease 3 db from no load figures at  $50^\circ\text{C}$ .

## INPUT VOLTAGE (RMS) (Maximum)

20 db		30 db		40 db	
0.1 V		0.078 V		0.03 V	

## FREQUENCY RESPONSE

Low End: Flat-Midband to 10 cps $\pm 0.7$ db		
High End: (Dependent upon gain as shown)		
Voltage	Gain	—1 db point
22.5	20 db	1 MC
22.5	30 db	250 KCPS
22.5	40 db	50 KCPS

## HARMONIC DISTORTION

Taken at 1 KCPS and —3 db from overload							
22.5 VDC				13.5 VDC			
20 db		40 db		20 db		40 db	
2nd	3rd	2nd	3rd	2nd	3rd	2nd	3rd
0.3%	0.1%	0.6%	0.3%	0.47%	1.15%	1.3%	0.3%

## INTERMODULATION DISTORTION

400 cps & 4000 cps mixed 4:1			
22.5 VDC		13.5 VDC	
20 db		40 db	
0.25%	0.4%	0.25%	0.4%

## EQUIVALENT INPUT NOISE

22.5 VDC				13.5 VDC			
20 db		40 db		20 db		40 db	
S	O	S	O	S	O	S	O
0.2	2.0	0.97	16.0	0.2	1.7	0.9	11.0

All values expressed in microvolts.

S—Shorted Input (8.0 mfd, low impedance short.)

O—Open Input.

Taken at  $25^\circ\text{C}$ . Bandwidth limited to 35 KCPS.